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My Thoughts / My Surgical Practice

Implementing the medically necessary, time-sensitive surgical scoring system during the COVID-19 pandemic☆

On March 27th, 2020 Executive Order 109 (EO 109) went into effect in New Jersey (NJ), halting all elective surgical procedures in adult patients. The rationale and intent behind the order was to help manage critical resources, personal protective equipment, personnel and ventilators during the height of the COVID-19 pandemic in NJ. On May 26th, EO 109 was lifted.

At the time, there was considerable discussion regarding operating room precautions during the COVID-19 pandemic.[1,2] However, there was less consensus regarding surgical prioritization. Initially, we relied on the Elective Surgery Acuity Scale (ESAS), Department Chairs and an EO 109 surgical committee to determine which cases were appropriate to go to the operating room. Quickly, we discovered many deficiencies with this system including standardization of case presentations, management of overwhelming requests, management of cases already delayed, inability to assess resource needs and differences in the definition of "non-elective" surgeries.

In an attempt to address these issues, we utilized the medically necessary, time-sensitive (MeNTS) surgical scoring system developed by the University of Chicago in the midst of the COVID-19 pandemic.[3] The MeNTS scoring system has been described as a useful framework for surgical prioritization but requiring further validation before it can be used widely.[4]

We created a formalized process incorporating both the ESAS and MeNTS score that allowed us to evaluate every surgical request within 24 hours. We used the MeNTS score to mainly discriminate between Urgent MeNTS cases, which needed to be completed within 2 weeks, and Priority Non-MeNTS cases, which could be delayed. When a MeNTS case was scheduled, like many institutions, we completed COVID screening and testing within 48 hours prior to surgery.[5] If there were multiple cases being considered, those with lower MeNTS scores were given priority. Definitive cutoffs based on MeNTS scores were not used, as resources and capacities were ever-changing and fixed cutoffs would not reflect this variation.

During the period of EO 109, the department chairs and perioperative committee reviewed 1316 surgical cases; 645 were deemed MeNTS cases and subsequently approved for surgery within 2 weeks. In order to assess the safety of our system, we compared outcome data from MeNTS surgeries performed during EO 109 with all elective surgeries from April–May 2019. By comparing MeNTS surgeries to elective surgeries, we attempted to set the safety standard as high as possible. Same day surgeries (SDS) accounted for 50% of the MeNTS procedures while outpatient (O/P) and inpatient (I/P) surgeries accounted for 7% and 43%, respectively.

We examined length of stay (LOS), blood transfusions, 30-day readmissions and mortality in each surgical cohort. There were no differences in outcomes between MeNTS SDS and elective SDS from the same time period in 2019. For O/P surgeries, the only difference in outcomes was a longer LOS in the MeNTS cohort (median 3 days (1–3) vs. 1 day (1-1); $P < 0.001$). There were adverse outcomes for both MeNTS I/P surgeries and elective I/P surgeries in 2019. However, the only difference was significantly more blood transfusions in MeNTS I/P surgeries (22% vs. 12%; $P < 0.001$) (Table 1).

The observed differences may be reflective of the acuity of surgeries performed during EO 109; these surgeries may have inherently required more transfusions and cases deemed O/P were converted to longer post-operative care secondary to placement issues. Further, recent studies have found that patient concerns regarding COVID-19 are delaying their pursuit of treatment, increasing morbidity and mortality.[6,7]

Throughout the study period, only 429 of the 645 patients approved for surgery were ultimately operated on. There are many possible reasons as to why 216 cases were not completed including scheduling difficulties with the hospital, work requirements, family obligations and reluctance from the patient to undergo surgery during a pandemic. Once EO-109 was rescinded and we attempted to reschedule patients who were awaiting surgery, the most noted reason not to schedule was fear of coming to the hospital.

Table 1
Comparison of outcomes from MeNTS cases operated on during the period of restricted surgery and elective surgeries from the same time period in 2019.

	MeNTS	2019 Elective	*P*-value
Outpatient Surgeries			
Patients	32	1983	
Median LOS (IQR)	3 days (1–3)	1 day (1-1)	<0.001
Blood Transfusions (%)	0 (0%)	0 (0%)	1
30-day readmissions (%)	0 (0%)	0 (0%)	1
Mortality (%)	0 (0%)	0 (0%)	1
Inpatient Surgeries			
Patients	184	1898	
Median LOS (IQR)	4 days (1–9)	3 days (2–6)	0.234
Blood Transfusions (%)	40 (22%)	225 (12%)	<0.001
30-day readmissions (%)	20 (11%)	141 (7.4%)	0.110
Mortality (%)	3 (1.6%)	24 (1.3%)	0.727

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Further, when examining the safety of the MeNTS scoring system we can only conclude that the 429 patients who had surgery were safely cared for. We have yet to determine the effects of delaying surgeries in those deemed non-MeNTS. Lastly, some aspects of the MeNTS scoring system are subjective. For example, the survey estimates the effect that delaying the surgery will have on disease outcome and on surgical difficulty/risk. In our study, each MeNTS score was calculated by one surgeon; we accounted for possible inter-observer variability by reviewing the MeNTS scores at our daily surgical committee meetings.

Overall, we believe that our results support the utilization of the MeNTS surgery scoring system. The process we developed was not only able to identify urgent cases but did so in a way that ensured good safety outcomes and appropriate use of resources. Additionally, it allowed us to efficiently handle the significant backlog of surgeries once EO 109 was lifted. As the COVID-19 pandemic continues to unfold, hospital systems will need effective ways to prioritize and handle the backlog of surgeries, which may take up to two years.[8,9] Because the surgical cases were already in our database and scored using an objective measure, we were able to return to 113% of operating volume in the months following EO 109 compared to the previous year.

Conflict of interest disclosures

Dr. Napolitano reports consultancy work for CVRx and NuVasive, outside the submitted work. Dr. Stifelman reports consultancy work for VTI and received payment for lectures from Conmend, Ethicon and Intuitive, outside the submitted work. The authors have no other conflict of interest to be declared.

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